

Sugarcane Variety Census: Florida 2002¹

B. Glaz, J. Vonderwell and R. A. Gilbert²

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This annual variety census of the Florida sugarcane industry for the 2002-2003 harvest season is the latest in a series of annual reports. Mill managers and independent growers supplied data for 99.4% of Florida's sugarcane acreage. As a result, the census contains much descriptive and useful information for the Florida sugarcane industry.

The census primarily reflects variety preferences of Florida sugarcane growers, and it categorizes their crop as plant cane, first ratoon, second ratoon, third ratoon, and fourth ratoon or older. The census also reports percentages of organic and sand soils and comparative use of the successive and regular planting systems as well as variety preferences for these soils and planting systems.

A total of 457,370 acres of sugarcane were reported for sugar and seed for the 2002-2003 crop. This represents a decrease of 9,129 acres compared to the 466,499 acres grown in the 2001-2002 season. (The total for this year was estimated by including the

small percentage of sugarcane area not reported.)

This year's total sugarcane acres for Florida places the state's sugarcane area at a level similar to that of two years ago. There was a steep rise in Florida's total sugarcane acres from 1976 through 1987, followed by a general stabilization, with some annual fluctuations, in total acres since 1987.

Of Florida's 2002-2003 sugarcane, 31.5 percent was plant cane and 68.5 percent was ratoon cane. This is a moderate change from the percentages of 30.6 for plant cane and 69.4 for ratoon cane reported last year (Glaz, 2002). Of this year's total acres, 29.8 percent was first ratoon, 24.2 percent second ratoon, 11.1 percent third ratoon, and 3.4 percent was fourth ratoon or older. These compared with 2000-2001 percentages of 27.5, 28.0, 10.8, and 3.1, respectively (Glaz, 2002). Since 2000, Florida sugarcane growers moderately increased the percentages of their crop in plant cane and third and fourth ratoon. The higher percentage of third and fourth ratoon crops is an indication that some varieties are maintaining production at acceptable levels into later ratoons on more land than was the case for older varieties.

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 2. B. Glaz, research agronomist, USDA-ARS Sugarcane Field Station, Canal Point, FL; J. Vonderwell, (formerly) biological scientist, USDA-ARS Sugarcane Field Station, Canal Pt, FL; R. A. Gilbert, associate professor, Agronomy Department, Everglades Research and Education Center--Belle Glade, FL; Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611.

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Florida growers reported growing 33 varieties of sugarcane this year. Ten principal varieties each covered at least 1.0 percent of the total cane area (Table 1). All varieties reported in this census came from one of two programs. The United States Sugar Corporation of Clewiston, Florida developed the varieties identified by a "CL" prefix. A cooperative program based at Canal Point, Florida of the United States Department of Agriculture's Agricultural Research Service, the Florida Sugar Cane League, Inc., and the Institute of Food and Agricultural Sciences of the University of Florida developed the varieties identified by a "CP" prefix. The group labeled as "All others" represented varieties that each made up less than 1.0 percent of the total acreage. Other CLs were unspecified varieties that growers reported as CL in origin, and were not included in the total of 33 varieties.

The most widely-grown variety in Florida this year was CP 80-1743 with 26.5 percent of the total cane area (Table 1). This is the fourth consecutive year that CP 80-1743 was the most widely grown variety, and its use has increased each of these years (Table 2). However, the use of CP 80-1743 may be approaching a maximum level with which growers are comfortable, because its plant-cane area decreased by 1.0 percent this year (Table 3). This year's decrease in percent plant cane of CP 80-1743 compares with an increase of 5.1 percent last year which was the largest percentage increase in plant cane among all of last year's varieties (Glaz, 2002). CP 80-1743 has high yields of tonnage and sugar concentration. Also, growers are apparently pleased with ratoon crop yields of CP 80-1743; it comprised 54.0 percent of the sugarcane in fourth ratoon and older, an increase of 4.1 percent compared to last year (Glaz, 2002 and Table 1). Concerns about CP 80-1743 include its susceptibility to leaf scald, its tendency to form growth cracks, and its sugar losses during the last half of the harvest season. After severe freezes during the previous harvest season, Florida growers placed a high priority on harvesting their remaining fields of CP 80-1743 due to its known susceptibility to freezing temperatures. The 2001 Clewiston Sugar Festival Award for highest yield at a warm muck location was won by Kautz Farms with a field of CP 80-1743.

After two years as the fourth-place variety, and one year in third place, CP 78-1628 moved up to second place this year with 12.7 percent of the total acreage (Tables 1 and 2). The overall increase in acreage for CP 78-1628 was 1.2 percent, and this was due to moderate increases in both plant and ratoon cane (Table 3). CP 78-1628 was the most widely grown variety on sand soils the past four years (Glaz, 2002), and this year sand soils comprised about three times more acres of CP 78-1628 than any other variety (Table 4). The 2001 Clewiston Sugar Festival Award for highest yield at a sand land location was won by Kilpatrick Cane with a field of CP 78-1628.

CP 72-2086 was the most widely grown variety in 1994 (Glaz, 1994), but it dropped to third place with 11.3 percent of the total acres this year (Table 1). CP 72-2086 was the second-most widely grown variety in Florida for the previous seven years (Tables 1 and 2). Sugarcane mosaic was discovered in several fields of CP 72-2086 in one region of Florida's sugarcane in 1996, the year of its highest percentage (Table 2). Since 1996, use of CP 72-2086 has declined from 18.0 percent to 11.3 percent this year (Table 2). This year's decline of 2.5 percent is the largest decline in any one year for CP 72-2086. This downward trend for CP 72-2086 will probably continue because the plant-cane percentage of CP 72-2086 dropped by 5.6 percent this year, by far the largest percentage decline in plant cane among the principal varieties (Table 3). A factor that may contribute to the decline in use of CP 72-2086 is that it is susceptible to pineapple disease. Growers in Florida have managed this susceptibility by chopping planted stalks of CP 72-2086 into long rather than short sections. However, mechanical planters are becoming more widely utilized in Florida, and these planters generally leave shorter rather than longer planted stalk sections.

CP 88-1762 was the fourth-place variety this year for the second consecutive year with 8.6 percent of the acreage (Tables 1 and 2). It classified as a principal variety for the first time only three years ago in 1999. At that time it made an uncustomarily large acreage increase for a new variety from 0.8 percent in 1998 to 2.0 percent in 1999 (Table 2). It moved from ninth place in 1999 to seventh place in 2000 (Glaz,

2000). The use of CP 88-1762 in Florida may be nearing a peak, because after increases in plant-cane use of 3.1 and 2.2 percent the past two years, the plant cane of CP 88-1762 increased by only 0.9 percent this year (Glaz 2002 and Table 3). The 2001 Clewiston Sugar Festival Award for highest yield at a cold muck location was won by Okeelanta Mill Lot Farm # 1 with a field of CP 88-1762.

In the 2000 census, CP 89-2143 was in twelfth place, and last year it was in seventh place with 3.5 percent of the total acreage (Glaz, 2000 and 2002). This year, CP 89-2143 moved to fifth place and increased its portion of the total acreage by 3.9 percentage points (Tables 1 and 2). An indication that the popularity of CP 89-2143 will continue is that its plant-cane acreage increased by 5.4 percent (Table 3). This was the greatest percentage increase of plant-cane acreage of any variety. CP 89-2143 has high yields of cane tonnage and sugar content. Growers also found during the 2000-2001 harvest season that it had excellent freeze tolerance. This freeze tolerance was also quantified in experimental plots by Shine, Jr. et al. (2001).

For the second consecutive year, CP 84-1198 was the sixth place variety (Table 2). Since 1994, the percentage acreage of CP 84-1198 has increased every year. However, the largest percentage increase for CP 84-1198 has been 1 percent, which occurred in 2001. Some growers report that, to avoid unacceptable reductions in ratoon yields, CP 84-1198 needs special attention while mechanically harvesting. Similarly, it is difficult to mechanically cut seed cane of CP 84-1198. Its advantages are its high sugar concentration and tonnage yields.

CP 73-1547 was the seventh most widely grown variety this year with 2.8 percent of the total cane area (Table 1). Last year, CP 73-1547 was the eighth-place variety (Table 2). Although its ranking improved, growers reduced their overall acres of CP 73-1547 by 0.5 percent this year (Table 3). CP 73-1547 has had moderate declines in percent acreage every year since 1994, except that it maintained 7.8 percent from 1996 to 1997 (Table 2). These declines are probably due to yield losses resulting from the susceptibility of CP 73-1547 to sugarcane rust. CP 73-1547 remained the second most widely grown

variety on sand soils, but its percent acreage on sand soil was 20.9 percentage points lower than that of CP 78-1628, the variety most used on sand soils (Table 4).

CP 80-1827 dropped from fifth place last year to eighth place this year with 2.0 percent of the total acreage (Table 1 and Glaz, 2002). CP 80-1827 was the number one variety in Florida from 1995 through 1998 (Table 2). However, since 1998, it has had substantial annual reductions in use beginning with a 4.2 percent reduction in 1999 and continuing with a 3.1 percent reduction this year. With its percent decline of 3.8 in ratoon acreage, CP 80-1827 had the largest decline of any variety in this category (Table 3). Probably the major reasons for its decline are yield losses due to its recent susceptibility to sugarcane rust and its moderately low sugar concentration.

CP 70-1133 was the ninth-place variety this year and CL 61-620 was the tenth place variety (Table 1). Although this is a reversal of rankings for these two varieties compared to last year, both varieties had similar declines in percent acreage (Glaz, 2002 and Table 3). CP 70-1133 was used as the reference variety in the cooperative variety selection program at Canal Point for several years (Glaz et al. 2001); and it was the most widely grown variety in Florida from 1982 through 1984 (Glaz and Donovan, 1984). Last year, CP 70-1133 was grown on 11.4 percent of Florida's sand soils (Glaz, 2002). This year, it declined to 8.6 percent of the sand acres (Table 4). The continued decline of CP 70-1133 is expected due to its rust susceptibility, low sugar concentration, and difficulty in harvesting on organic soils. The percentage use of CL 61-620 has declined annually since 1994. Its decline by 1.2 percentage points this year (Table 3) was similar to its decline of 0.9 percentage points last year (Table 2).

Of the 23 varieties grouped as "all others," CL 73-239, CP 70-1527, CP 80-1557, CP 85-1432, CP 86-1664, CP 89-2376, CP 89-2377, CP 92-1213, and CP 92-1641 all had no acres as plant cane this year. The absence of plant cane for a variety indicates that its commercial use may soon stop. This will probably not be the case for CP 89-2376 because it was officially released this year, and its use is expected to

increase. Varieties that were released for commercial use in Florida and were no longer grown for the first time this year were CP 57-603, CP 74-2005, CP 81-1384, CP 82-1592, and CP 88-1834. Although always a minor variety in Florida, CP 57-603 is probably the most planted CP variety due to its international use.

Growers classified nearly all of their land as having either organic or sand soil. They reported that 78.4 percent of their soils were organic and 21.6 percent were sand (Table 4). These percentages were nearly the same as last years 78.5 percent reported for organic and 21.5 percent for sand soils (Glaz, 2002).

To officially classify these soils as organic or sand, one would determine the percentage of organic matter by weight. A soil with at least 20 percent organic matter would be organic and one with less than 20 percent organic matter would be a sand soil. This report relies on individual growers to use their own criteria to classify their soils. Most classifications are probably correct because, in Florida, most organic soils used for sugarcane have much more than 20% organic matter and most sand soils used for sugarcane have far less than 20% organic matter. However, some sugarcane in Florida is grown on soils that would require a weighed analysis for proper determination.

Growers have had variety preferences according to soil in the past, and such preferences continued this year (Table 4). Only CP 78-1628, CP 84-1198, and CP 80-1827 had a substantial percentage of use (at least 28 percent) on each soil type. Otherwise, CP 88-1762 and CP 89-2143 were used almost exclusively on organic soils and CL 61-620 was used only on organic soils. CP 80-1743 and CP 72-2086 together comprised 8.4 percent of Florida's sugarcane on sand soils, but each variety was used primarily on organic soils. Conversely, CP 73-1547 and CP 70-1133 were used primarily on sand soils. CP 78-1628 was a major variety on organic soils (7.5 percent), but it was overwhelmingly the most popular variety on sand soils.

All plant-cane acres were categorized as of the regular or successive planting system. In the regular system, growers do not plant sugarcane after a final-ratoon harvest until the following planting

season. Growers often plant at least one other crop, such as sweet corn, rice, or radishes before the next sugarcane crop planted in this regular system. In the successive planting system, sugarcane is planted several weeks after a final-ratoon sugarcane harvest.

Of the 143,878 plant-cane acres classified by planting system, 56,741 (39.4 percent) were regular planted and 87,137 (60.6 percent) were successively planted (Table 5). These figures are a major departure from the 50.1 percent regular and 49.9 percent successive figures reported in the 2001 census (Glaz, 2002). From 1992 until this year, regular planting had generally been increasing relative to successive planting.

Most varieties were distributed similarly between the regular and successive planting systems (Table 5). One exception was CP 80-1743 which was planted more in the successive than the regular system. Also, the group of varieties categorized as Other CLs were used much more in successive than regular planting.

The three most widely grown varieties accounted for 50.5 percent of Floridas 2002 sugarcane, nearly identical to the 50.6 percent reported last year (Table 6). The lack of a substantial change in this figure indicates that Florida growers maintained a similar level of variety diversification during the past two growing seasons. This was the eleventh consecutive year that CP 72-2086 was among the three most widely grown sugarcane varieties in Florida, the sixth consecutive year for CP 80-1743, and the second consecutive year for CP 78-1628.

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References

Glaz, B. 1994. Sugarcane variety census: Florida 1993. *Sugar y Azucar* 89(1):39-43.

Glaz, B. 2000. Sugarcane variety census: Florida 2000. *Sugar y Azucar* 95(12):22-24, 26-29.

Glaz, B. 2002. Sugarcane variety census: Florida 2001. *Sugar Journal* 65 (3):35-39.

Glaz, B., J.C. Comstock, P.Y.P. Tai, J.D. Miller, J. Follis, J.S. Brown, and L.Z. Liang. 2001. Evaluation of new Canal Point sugarcane clones: 1999-2000 harvest season. U.S. Department of Agriculture, Agricultural Research Service, ARS-157, 28 pp.

Glaz, B. and W.C. Donovan. 1984. Florida's 1984 Sugar Cane Variety Census. *Sugar y Azucar* 79(12):30-31, 33.

Shine, Jr., J.M., R.A. Gilbert, and J.D. Miller. 2001. Post-freeze performance of 16 sugarcane cultivars following the December 31, 2000 freeze event in Florida. *Sugar Journal* 64(1)21-22.

Table 1. Percentages of 2002 Florida sugarcane planted to each of 13 varieties that comprised at least one percent of the total acreage.

Variety	Total cane grown	Plant cane	First-ratoon cane	Second-ratoon cane	Third-ratoon cane	Fourth-ratoon cane and older.
Percent of Total Acres						
CP 80-1743	26.5	26.4	25.5	21.7	31.5	54.0
CP 78-1628	12.7	12.9	11.1	14.4	13.2	10.2
CP 72-2086	11.3	9.0	14.2	14.0	6.6	4.4
Other CLs	10.4	9.3	9.5	12.3	11.9	9.4
CP 88-1762	8.6	10.2	9.1	7.3	7.4	1.6
CP 89-2143	7.4	13.1	7.8	3.1	1.2	0.0
CP 84-1198	5.1	5.5	6.3	5.1	2.1	0.8
CP 73-1547	2.8	1.8	2.8	3.5	4.4	2.4
CP 80-1827	2.0	0.2	1.7	4.2	2.9	2.7
CP 70-1133	2.0	1.1	1.2	2.5	4.9	5.0
CL 61-620	1.7	0.9	1.3	3.2	1.8	0.8
All others	9.5	9.6	9.5	8.7	12.1	8.7
Total acres	457,370	144,016	136,507	110,621	50,600	15,625

Table 2. Annual percentages from 1993 through 2002 for each of 10 varieties that comprised at least one percent of Florida's 2002 sugarcane acreage.

Variety	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	Percent									
CP 80-1743	2.7	5.2	7.1	10.7	12.0	14.4	17.8	22.1	25.1	26.5
CP 78-1628	0.7	1.0	1.9	2.6	5.0	5.9	7.9	9.3	11.5	12.7
CP 72-2086	13.6	15.5	15.5	18.0	17.1	16.3	14.6	14.2	13.8	11.3
CP 88-1762	0.0	0.0	0.0	0.0	0.2	0.8	2.0	4.1	6.2	8.6
CP 89-2143	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.2	3.5	7.4
CP 84-1198	0.0	0.1	0.5	1.0	1.5	2.2	2.9	3.8	4.8	5.1
CP 73-1547	8.7	9.8	8.9	7.8	7.8	6.7	5.4	4.1	3.3	2.8
CP 80-1827	8.3	13.1	16.1	18.2	17.5	18.2	14.0	9.9	5.1	2.0
CP 70-1133	12.2	9.9	7.8	6.4	5.9	4.9	4.7	3.7	2.8	2.0
CL 61-620	14.8	15.0	13.0	11.1	10.2	7.6	6.2	4.7	2.9	1.7

Table 3. Percentages of 2001 and 2002 acreages for each of 10 varieties that comprised at least one percent of Florida's 2002 sugarcane acreage.

Variety	Combined plant and ratoon cane			Plant Cane Only			Ratoon Cane only		
	2001	2002	Change	2001	2002	Change	2001	2002	Change
CP 80-1743	25.1	26.5	+1.4	27.4	26.4	-1.0	24.2	26.5	+2.3
CP 78-1628	11.5	12.7	+1.2	11.1	12.9	+1.8	11.7	12.6	+0.9
CP 72-2086	13.8	11.3	-2.5	14.6	9.0	-5.6	13.5	12.4	-1.1
CP 88-1762	6.2	8.6	+2.4	9.3	10.2	+0.9	4.8	7.8	+3.0
CP 89-2143	3.5	7.4	+3.9	7.7	13.1	+5.4	1.6	4.7	+3.1
CP 84-1198	4.8	5.1	+0.3	6.0	5.5	-0.5	4.1	4.9	+0.8
CP 73-1547	3.3	2.8	-0.5	1.3	1.8	+0.5	3.6	3.3	-0.3
CP 80-1827	5.1	2.0	-3.1	1.7	0.2	-1.5	6.6	2.8	-3.8
CP 70-1133	2.8	2.0	-0.8	1.1	1.1	+0.0	3.6	2.4	-1.2
CL 61-620	2.9	1.7	-1.2	1.3	0.9	-0.4	3.6	2.0	-1.6

Table 5. Actual and percentage acreages in regular and successive planting systems for each of 12 varieties that comprised at least one percent of Florida's 2002 sugarcane.

Variety	Regular System		Successive System	
	Acre	Percent	Acre	Percent
CP 80-1743	9,065	16.0	28,862	33.1
CP 78-1628	7,311	12.9	11,271	12.9
CP 72-2086	7,151	12.6	5,795	6.7
Other CLs	2,555	4.0	11,073	12.7
CP 88-1762	7,882	13.9	6,802	7.8
CP 89-2143	9,584	16.9	9,307	10.7
CP 84-1198	2,845	5.0	5,083	5.8
CP 73-1547	988	1.7	1,564	1.8
CP 80-1827	242	0.4	42	0.0
CP 70-1133	531	0.9	1,025	1.2
CL 61-620	1,005	1.8	262	0.3
All others	7,882	13.9	6,052	7.0
Total	56,741	100.0	87,137	100.0

Table 6. Percentage of the total sugarcane acreage of the three most widely grown varieties in Florida in each of ten years since 1993.

Year	Percent	Variety Rank		
		First	Second	Third
1993	40.6	CL 61-620	CP 72-2086	CP 70-1133
1994	43.6	CP 72-2086	CL 61-620	CP 80-1827
1995	44.6	CP 80-1827	CP 72-2086	CL 61-620
1996	47.3	CP 80-1827	CP 72-2086	CL 61-620
1997	46.6	CP 80-1827	CP 72-2086	CP 80-1743
1998	48.9	CP 80-1827	CP 72-2086	CP 80-1743
1999	46.4	CP 80-1743	CP 72-2086	CP 80-1827
2000	46.2	CP 80-1743	CP 72-2086	CP 80-1827
2001	50.6	CP 80-1743	CP 72-2086	CP 78-1628
2002	50.5	CP 80-1743	CP 78-1628	CP 72-2086